

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Stearic Acid
- English Name: Stearic Acid
- CAS Number: 57-11-4
- Formula: C₁₈ H₃₆ O₂ (CH₃(CH₂)₁₆ COOH)
- Molecular Weight: 284.48 g/mol
- Product Characteristics: High-purity white fatty acid flakes/powder, natural/synthetic origin, faint fatty odor, insoluble in water, soluble in organic solvents/oils. High acid value, low iodine value (saturated fatty acid), excellent emulsifying, lubricating and thickening properties. Stable under normal conditions, saponifies with alkalis to form stearates (soap). FDA/EU approved for food/cosmetic use.

2. Technical Specifications

Item	Specification
Appearance	White to off-white flakes/powder
Acid Value	195-205 mg KOH/g
Saponification Value	196-206 mg KOH/g
Iodine Value	≤ 2.0 g I ₂ /100g
Melting Point	54-60°C
Moisture Content	≤ 0.5%
Ash Content	≤ 0.1%
Heavy Metals (Pb)	≤ 5 ppm
Iron (Fe)	≤ 5 ppm
Free Fatty Acids	≥ 98.0%
Solubility	Insoluble in water, soluble in ethanol/oils

3. Product Advantages

- **Multi-functional:** Emulsifier, thickener, lubricant, plasticizer, anti-caking agent – suitable for multiple industries.
- **Safe:** FDA/EU approved for food/cosmetic use; non-toxic, low irritation, no harmful residues.
- **Stable:** Saturated fatty acid (no oxidation/rancidity); long shelf life under normal storage.
- **Compatible:** Reacts with alkalis to form stearates (soap, metal stearates); compatible with most organic/inorganic additives.
- **Cost-effective:** High purity with consistent performance; low dosage for effective results.

4. Application Fields

- **Cosmetics & Toiletries:** Cream/lotion emulsifier, soap base, lipstick thickener, shampoo conditioner (improves texture and stability).
- **Plastics & Rubber:** PVC lubricant/plasticizer, rubber mold release agent, plastic film anti-blocking agent (improves processability).
- **Food Industry:** Food additive (E570) – anti-caking agent for powders, emulsifier for dairy products, baking fat additive (comply with FDA/EU dosage limits).



NEWAY SINOPHC TECH. LIMITED

ADD:RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
Email:marketing01@newayphc.com; Phone:+86-021-50350029 <https://www.newayphc.com>

- **Soap & Detergent:** Main raw material for bar soap (saponification with NaOH), detergent builder (improves cleaning performance).
- **Other:** Candle making (hardener), metal stearate production (Zn/Mg/Al stearates), paint thickener, textile softener.

5. Usage Methods

- **Cosmetic Emulsifier:** Add 2-5% (mass ratio) to oil phase; melt with other oils (70-80°C); mix with water phase (same temperature) and stir to emulsify.
- **Plastic Lubricant:** Add 0.5-2% to plastic resin (PVC/PE/PP); mix evenly before extrusion/injection molding.
- **Soap Production:** Mix stearic acid with 30% NaOH solution (1:1 molar ratio); heat to 80-90°C for saponification (stir continuously); add glycerol for soft soap.
- **Food Anti-caking Agent:** Add 0.1-0.5% to food powders (flour/milk powder); mix evenly (comply with FDA/EU E570 dosage limits).
- **Candle Making:** Add 5-15% to paraffin wax; melt and pour into molds (improves candle hardness and burning performance).
- **Optimal Conditions:** Melt stearic acid in closed containers (70-90°C); avoid overheating (> 300°C); mix evenly for homogeneous formulations.

6. Packaging & Storage

- **Packaging:** 25 kg fiber drums (sealed), 50 kg HDPE drums (sealed), 1 kg/bag (powder, laboratory use), 5 kg/box (flakes, cosmetic use).
- **Storage:** Cool, dry, well-ventilated warehouse ($\leq 30^{\circ}\text{C}$); store in sealed drums/boxes; avoid direct sunlight, high temperature (prevents melting) and open flames; keep away from strong oxidizing agents.
- **Shelf Life:** 36 months (unopened, under specified conditions).
- **Transportation:** Non-dangerous goods; avoid high temperature, collision and direct sunlight during transport; keep sealed to prevent dust/moisture.

7. Safety & Protection

- Wear nitrile gloves and safety goggles during handling; dust mask for powder/flake operations; heat-resistant gloves for melting stearic acid.
- Avoid dust inhalation and skin/eye contact; rinse immediately with water/soap if contact occurs.
- Melt stearic acid in well-ventilated area (no open heating); keep away from open flames (combustible).
- Food/cosmetic grade stearic acid must be stored separately from industrial grade (dedicated area).

8. Quality Assurance

- Manufactured under ISO 9001 quality management system, GMP (cosmetic grade) and HACCP (food grade).
- Multiple grades available: Industrial, Cosmetic, Food (all with corresponding COA).
- Each batch is tested for acid value, saponification value and heavy metals; consistent performance guaranteed.
- Provide technical support for formulation (e.g., cosmetic emulsification, plastic lubrication) and process optimization.